

Docket No. HUANG04  
US App. No. 10/537,841 «APPLICATION\_NO»

## REMARKS

### Status of the Application

The specification and the abstract were objected to for minor informalities.

Claims 1-6 are currently pending, of which:

Claims 1-6 were rejected both under 35 USC 112, second paragraph.

Claim 1 was rejected under 35 USC 103(a) as being unpatentable over Samuelson et al. (US 3,769,152) in view of Crocker et al. (US 2,040,430), Capps (US 5,366,594) and Rutkiewic (US 3,767,586).

Claim 2 was rejected under 35 USC 103(a) as being unpatentable over Samuelson, Crocker, Capps and Rutkiewic as applied to claim 1, and further in view of Schur et al. (US 1,730,387).

Claims 3, 4, and 6 were rejected under 35 USC 103(a) as being unpatentable over Pan (US 6,258,207) in view of Samuelson, Crocker, Capps and Rutkiewic.

Claim 5 was rejected under 35 USC 103(a) as being unpatentable over Pan, Samuelson, Crocker, Capps and Rutkiewic as applied to claim 3, and further in view of Bradley et al. (US 1,768,823).

Applicant has amended claims 1-6 and the specification, and added new claim 7. No new matter adds through the amendments. For the reasons discussed below, withdrawal of the rejections is requested.

### Specification Objections

*The specification and the abstract were objected to for minor informalities.*

Applicant has amended the specification and the abstract to correct the minor informalities.

Withdrawal of the objection is requested.

### Claim Rejections- 35 U.S.C. 112, Second Paragraph

*Claims 1-6 were rejected under 35 USC 112, second paragraph.*

Applicant has amended claim 1 to delete the terms "hydrone volatile", "free quinine", "the remaining", and "active matter". The term "anion silicic acid softener" is replaced by "anion silicate softener" which is a more accurate translation of the corresponding term in the original

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PCT application.

Claims 2-6 have been amended to address the antecedent basis issue and to correct minor informalities.

It is believed the amendments made to the claims 1-6 overcome the rejections.

Withdrawal of the rejection is requested.

**Claim Rejections- 35 U.S.C. 103(a)**

*Claim 1 was rejected under 35 USC 103(a) as being unpatentable over Samuelson et al. (US 3,769,152) in view of Crocker et al. (US 2,040,430), Capps (US 5,366,594) and Rutkiewic (US 3,767,586).*

Applicant respectfully traverses the rejection for the reasons given below. Claim 1, as amended, reads as:

1. A catalyst for clean non-woody pulping comprising:  
5 wt% - 9 wt% of sodium salicylate;  
2 wt% - 5 wt% of anion silicate softener;  
3 wt% - 7 wt% of cooking aids;  
2.1 wt% - 3.7 wt% of liquid chlorine or gaseous chlorine; and  
balance of water;  
wherein said cooking aids includes:  
0.01 wt% - 5 wt% of ethanol and/or ether;  
0.25 wt% - 35 wt% of concentrated sulfuric acid and/or carbon tetrachloride;  
0.15 wt% - 30 wt% of basic Na<sub>2</sub>SO<sub>3</sub>; and  
balance of water.

Samuelson does not teach or suggest such a catalyst. Samuelson teaches a process for the production of cellulose of high brightness from wood by digestion or pulping with alkali and oxygen in aqueous solution under moderate oxygen pressure, limiting the amount of alkali at the start of the digestion to less than that required, and progressively adding alkali as the digestion continues, while maintaining the digestion liquor at a pH within the range from about 9.2 to about 13.

Abstract.

Clearly, Samuelson's process is for the production of cellulose of high brightness from wood. Samuelson does not teach or suggest that his process can be used for non-woody pulp.

Furthermore, Samuelson's process mainly uses alkali and oxygen to digest the wood. Alkali-soluble silicic acids or silicates are only used as inhibitors in the amount within the range

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from 0.01 to 2 percent by weight of the try wood. Col. 10, lines 21-28. While in the present invention as defined in claim1, the anion silicate softener is used in the amount within the range from two to five percent by weight of the catalyster. These two percentages have different basis and is not directly comparable. In fact, in the present invention as recited in claim 3, the dry weight of the raw material is only 3-8% of the weight of the catalyster. Therefore, the anion silicate softener is at least 25% by weight of the dry raw material.

Samuelson teaches pretreatment of the wood with a 0.1 to 1 percent aqueous solution of sulfuric acid. Col. 10, lines 63-67. However, this is only for pretreatment. Samuelson does not teach to use the sulfuric acid solution together with the alkali as a catalyster. Samuelson also mentions the use of sodium sulfite for the pretreatment without giving specific concentration. Samuelson specifically teaches that the pretreatment is carried out before the oxygen digestion process. Col. 11, lines 3- 22. Therefore, it is not cooking aid as defined in claim 1 because, in the present invention as defined in claim 1, the cooking aid is mixed and used together with the rest components of the catalyster throughout the pulping process.

The Office Action acknowledged that Samuelson does not teach the amount and the use of sodium salicylate, the amount and the use of sodium salicylate, the amount of sodium sulfite, or the percentage of the total cooking aid, but, alleged that "absent a showing of unexpected results, it would have been obvious to a person of ordinary skill in the art to optimize the amount of cooking aid added to achieve some dissolution and modification of the raw material".

Applicant respectfully disagrees.

Samuelson does not even teach a cooking aid which is a part of a catalyster and the catalyster is used as a whole, it is unclear how it can be obvious to optimize the amount of cooking aid. Further, Samuelson's process is for the production of cellulose of high brightness from wood. While the present invention as defined in claim 1 is directed to the clean pulping of non-woody raw material. Therefore, "unexpected results" are achieved by the present invention.

Samuelson also fails to teach a cooking aid comprising ethanol and/or ether, and carbon tetrachloride.

The Office Action cited Crocker to teach that sodium salicylate is a complexing agent. However, Crocker teaches a process of stabilizing soap in respect both to color and odor, the purpose of which is totally different from that of the present invention and that of Samuelson. There is not suggestion or motivation to combine these two as proposed by the Office Action.

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Furthermore, even they were combined as suggested, Crocker merely mentions sodium salicylate as a complexing agent, but does not give any suggestion about the percentage or concentration of sodium salicylate to be used. Applicant never claims that sodium salicylate is new. What is novel is that certain percentage of sodium salicylate is used in a specific combination of components in a catalyst for clean non-woody pulping.

Capps is cited to teach a cooking aid comprising a 1% solution of sulfuric acid and 20% sodium sulfite. However, Capps teaches a process for making rice hull pulp, the rice hull and a liquor of 20% sodium sulfite is heated in a digester at pH 6-8, then a 1% solution of sulfuric acid is added to bring the pH to about pH3. Col. 2, line 66 to col. 3, line 22. The process of Capps is carried out at a pH below 8, while Samuelson's process is carried out at a pH between 9.2 and 13. They conflict with each other. Therefore, the combination of the two is improper. Even they were combined as proposed, Capps still fails to teach the percentage of the cooking aid in the catalyst. Applicant never claims that the sulfuric acid solution or the sodium sulfite as recited in claim 1 is new. What is novel is that certain percentage of the sulfuric acid solution or the sodium sulfite is used in a specific combination of components in a catalyst for clean non-woody pulping.

Rutkiewic is cited to teach a composition comprising an aqueous solution of chlorine and silicic acid used as a bleach. Rutkiewic teaches a process for preparing stable concentrated aqueous solution of N-halo compounds, in which water, an N-hydrogen compound a halogen, an alkali or alkaline earth hydroxide, and a buffering compound are added to and mixed in a reaction vessel. The buffer establishes and maintains a pH in the range of 4.5 to 8.5, thereby preventing rapid decomposition of the N-halo compounds. Abstract. The process of Rutkiewic is carried out at a pH between 4-5 and 8.5, while Samuelson's process is carried out at a pH between 9.2 and 13. They conflict with each other. Therefore, the combination of the two is improper. Furthermore, The process of Rutkiewic is for a totally different purpose from that of Samuelson, there is no suggestion or motivation to combine the two.

For the reasons discussed above, claim 1 is believed patentable over Samuelson et al., Crocker et al., Capps, and Rutkiewic.

*Claim 2 was rejected under 35 USC 103(a) as being unpatentable over Samuelson, Crocker, Capps and Rutkiewic as applied to claim 1, and further in view of Schur et al. (US 1,730,387).*

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Schur is cited to teach an emulsion. However, clearly, Schur cannot cure the above discussed deficiencies of Samuelson. Therefore, claim 1 as well as its dependent claim 2 are patentable over Samuelson, Crocker, Capps, Rutkiewic, and Schur.

*Claims 3, 4, and 6 were rejected under 35 USC 103(a) as being unpatentable over Pan (US 6,258,207) in view of Samuelson, Crocker, Capps and Rutkiewic.*

Claim 3 recites a process for using the catalyst for clean non-woody pulping according to claim 1. As discussed above, Samuelson, Crocker, Capps and Rutkiewic, either alone or in combination, do not teach the catalyst of claim 1. Clearly, Pan also fails to teach such a catalyst. For at least this reason, claims 3, 4, and 6 are patentable over Pan, Samuelson, Crocker, Capps, and Rutkiewic.

*Claim 5 was rejected under 35 USC 103(a) as being unpatentable over Pan, Samuelson, Crocker, Capps and Rutkiewic as applied to claim 3, and further in view of Bradley et al. (US 1,768,823).*

Bradley is cited to teach that calcium hypochlorite is used for bleaching. However, Bradley cannot cure the above discussed deficiencies of Pan, Samuelson, Crocker, Capps, and Rutkiewic. Therefore, claim 3 as well as its dependent claim 5 are patentable over Pan, Samuelson, Crocker, Capps, Rutkiewic, and Bradley.

#### New Claims

New claim 7 has been added. New claim 7 is identical except that the term "concentrated sulfuric acid" is removed.

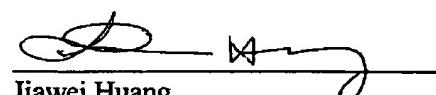
#### **Conclusion**

In view of the foregoing amendments and remarks, it is respectfully submitted that the pending claims 1-7 are now in condition for allowance. Allowance of this application is earnestly solicited.

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Respectively submitted  
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